

DIFFUSION BARRIERS COMPRISING A SELF-ASSEMBLED MONOLAYER

ABSTRACT OF THE DISCLOSURE

The present invention provides a method for forming a diffusion barrier layer,
5 a diffusion barrier in an integrated circuit and an integrated circuit. The method for forming a
diffusion barrier involves the following steps: 1) preparing a silicon substrate; 2) contacting
the silicon substrate with a composition comprising self-assembled monolayer subunits and a
solvent; and, 3) removing the solvent. The diffusion barrier layer includes a self-assembled
monolayer. The integrated circuit includes a silicon substrate, a diffusion barrier layer and a
10 metal deposited on the diffusion barrier layer. The diffusion barrier layer in the integrated
circuit is covalently attached to the silicon substrate and includes a self-assembled
monolayer.

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